

WHAT IS CLAIMED IS:

1. A method of producing a piezoelectric resonator, comprising:
 - forming a flat plate piezoelectric resonator piece;
 - forming exciting electrodes on each of the upper side and lower side of the piezoelectric resonator piece from electrode patterns formed on the piezoelectric resonator piece;
 - forming conduction electrodes from the electrode patterns on the edges of the upper side, the edges of the lower side, and the sides of the piezoelectric resonator piece so as to electrically connect the exciting electrodes;
 - forming an insulating surface protecting films on the upper and lower sides of the piezoelectric resonator piece to cover at least the exciting electrodes, each of the electrode patterns comprising an under metal layer formed on the surface of the piezoelectric resonator piece, and a noble metal layer formed on the surface of the under metal layer, each of the electrode patterns in the exciting electrodes comprising the under metal layer, each of the electrode patterns in the conduction electrodes comprising the under metal layer except portions ranging from the upper side of the piezoelectric resonator piece to the lower side through the sides, and each of the electrode patterns in the portions comprising the under metal layer and the noble metal layer;
 - forming the first electrode patterns each comprising the under metal layer and the noble metal layer to cover the entire surface of the under metal layers in the electrode pattern forming regions of the surface of the piezoelectric resonator piece;
 - forming a first mask covering regions corresponding to portions of the

conduction electrodes, and having apertures in the conduction electrode forming regions excluding the portions and in the exciting electrode forming regions;

removing the first noble metal layers exposed from the apertures;

forming the first insulating films forming the surface protecting films; and

removing the first insulating films deposited on the surface of the mask.

2. The method of producing a piezoelectric resonator according to claim 1, the portions of the conduction electrodes lying in regions corresponding to curved or bent portions of the sides of the piezoelectric resonator piece.

3. The method of producing a piezoelectric resonator according to claim 1, the mask being a resist mask.

4. The method of producing a piezoelectric resonator according to claim 2, the mask being a resist mask.

5. The method of producing a piezoelectric resonator according to claim 1, the noble metal layer being formed of gold.

6. The method of producing a piezoelectric resonator according to claim 1, the noble metal layer being formed of silver.

7. The method of producing a piezoelectric resonator according to claim 1, the under metal layer being formed of chromium.

8. A method of producing a piezoelectric resonator, comprising:

forming a flat plate piezoelectric resonator piece;

forming exciting electrodes on each of the upper side and lower side of the piezoelectric resonator piece from electrode patterns formed on the piezoelectric resonator

piece;

forming conduction electrodes from the electrode patterns on the edges of the upper side, the edges of the lower side, and the sides of the piezoelectric resonator piece so as to electrically connect the exciting electrodes;

forming insulating surface protecting films on the upper and lower sides of the piezoelectric resonator piece to cover at least the exciting electrodes, each of the electrode patterns comprising an under metal layer formed on the surface of the piezoelectric resonator piece, and a noble metal layer of gold or silver formed on the surface of the under metal layer, each of the electrode patterns of the exciting electrodes comprising the under metal layer, and each of the electrode patterns of the conduction electrodes comprising the under metal layer except portions ranging from the upper side of the piezoelectric resonator piece to the lower side through the sides, each of the electrode patterns in the portions comprising the under metal layer and the noble metal layer;

forming the second electrode pattern each comprising the under metal layers in the electrode pattern forming regions of the surface of the piezoelectric resonator piece and the noble metal layers covering the entire surfaces of the under metal layers, and forming resist to cover portions of the surfaces of the noble metal layers corresponding to the electrode patterns;

removing the second mask comprising the under metal layers and the noble metal layers in the portions of the piezoelectric resonator piece which are not covered with the resist;

forming a mask covering regions corresponding to portions of the

conduction electrodes, and having apertures in the exciting electrode forming regions and in the conduction electrode forming regions, excluding the portions;

removing the second noble metal layers exposed from the apertures;

forming the second insulating films forming the surface protecting films;

and

removing the second insulating film deposited on the surface of the mask.

9. The method of producing a piezoelectric resonator according to claim 8, the portions of the conduction electrodes lying in regions corresponding to curved or bent portions of the sides of the piezoelectric resonator piece.

10. The method of producing a piezoelectric resonator according to claim 8, the mask being a resist mask.

11. The method of producing a piezoelectric resonator according to claim 9, the mask being a resist mask.

12. The method of producing a piezoelectric resonator according to claim 8, the noble metal layer being formed of gold.

13. The method of producing a piezoelectric resonator according to claim 8, the noble metal layer being formed of silver.

14. The method of producing a piezoelectric resonator according to claim 8, the under metal layer being formed of chromium.